

SECRETS OF THE SEA.

How the Hydrographic Office is Trying to Learn Them.

The setting afloat of messages in bottles has been an expedient resorted to by ship-wrecked mariners for many centuries. Often has a writing thus consigned to the waves been the happy means of rescuing castaways, bringing succor to those whom hope had well nigh forsaken. More frequently such a document, picked up years later perhaps, has relieved suspense by making certain the fate of missing voyagers. It seems odd that this idea should have been recently adopted by science for the practical and unromantic purpose of finding out about the surface currents of the ocean.

This work is the newest that has been undertaken by the hydrographic office of the United States navy. Within the last two years it has distributed tens of thousands of "bottle papers" among the 2,500 skippers of seagoing vessels, from sailing craft to Atlantic liners, who contribute reports as voluntary observers in exchange for supplies of pilot-charts, &c., given by the government. These bottle papers are printed forms which the observers are requested to inclose in bottles and throw overboard after marking upon each of them the latitude, longitude and date. On each paper is a separate space in which the person who may find the bottle is asked to write the date and locality, afterward forwarding the paper to the nearest United States consul or to the hydrographic office at Washington. Directions as to these matters are printed on the paper in several languages. Up to the present time 261 of the bottle papers thus scattered broadcast have been returned, but thousands of them are still afloat, and of these a considerable percentage will be picked up sooner or later. Of course, it is impossible to know how many of those placed in the hands of observers have been duly bottled and launched.

The course taken by the bottles in drifting tells the story of the ocean currents, and knowledge of these is of the utmost importance to mariners. Chiefly it is valuable for enabling vessels to select such routes across the seas as will make it possible for them to take advantage of favoring streams and to avoid unfavorable ones. Columbus knew nothing about the currents of the Atlantic, and so he made his way to the new world by the path which the surface drift laid out for him. Thus, after being driven far to the southward, he finally brought up at San Salvador. Knowing where he started from and the point at which he finally arrived, hydrographers to-day can draw a curved line on the map showing exactly the course which he must have followed. Just at this time such a fact possesses no little interest. Only a few months ago the hydrographic office was called upon to determine the probable location of a Pacific mail steamship which was lost in the Pacific ocean. Her machinery having broken down, as was reported by a vessel which had signaled her, she had drifted off and nothing had been heard of her for weeks. The Pacific Mail Company, being unable to find her, appealed to the experts at Washington, who promptly pointed out the exact spot where she would be discovered. And she was found there, 600 miles west of where the owners had been looking for her. This was figured out from known facts respecting the direction and velocity of the currents in that great waste of waters.

Tools.

Fine-edged tools assume a blue color and lose all temper if exposed for any considerable length of time to the light of the sun, either in summer or winter. A similar effect is exercised by moonlight, a large cross-cut saw with which the experimenters were working having been "put out of shape and its temper ruined by a single night's exposure to a first-quarter moon."

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